Generic Support for Decision-Making in Effects-Based Management of Operations

KLAS WALLENIUS

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Abstract

This thesis investigates computer-based support tools to facilitate decision-making in civilian and military operations. As flexibility is essential when preparing for unknown threats to society, this support has to be general. Further motivations for flexible and general solutions include reduced costs for technical development and training, as well as faster and better informed decision-making.

We use the term *Effects-Based Management of Operations* to denote the accomplishment of desired effects beyond traditional military goals by the deployment of all types of available capabilities. Supporting this work, *DISCCO* (Decision Support for Command and Control) is a set of network-based services including *Command Support*, helping commanders in the human, collaborative and continuous process of evolving, evaluating, and executing solutions to their tasks, *Decision Support*, improving the human process by integrating automatic and semi-automatic generation and evaluation of plans, and a *Common Situation Model*, capturing the hierarchical structure of the situation regarding own, allied, neutral, and hostile resources.

The use of the DISCCO has been investigated in three different applications: planning for establishing surveillance of an operation area, planning for NBC defense, and executing a riot control operation. Together, these studies indicate that DISCCO is applicable in many different classes of Effects-Based Management of Operations. Hence, this generic concept will contribute to the work of both the civilian and military defense in dealing with a broad range of current and future threats to the society.

**Keywords:** Command and Control, Management, Effects-Based Operations, Command Support, Decision Support, Data Fusion, Information Fusion, Situation Awareness, Network-Based Defense, Ontology.

**The thesis may be downloaded from:**